

**Tennessee Department of Transportation
Division of Materials and Tests**

**Submittal and Approval of
Hot Mix Asphalt Mix Designs (SOP 3-4)**

Purpose: The purpose of this document is to establish an acceptance procedure for hot mix asphalt mix designs.

Discussion: Asphalt mix designs submitted to the TDOT must exhibit certain physical performance properties indicated in Standard Specifications including but not limited to Marshall Stability, flow, and Tensile Strength Ratio (TSR). In addition, designs must exhibit a capability of producing other physical properties consistent with that which is reported on Job Mix Formulas (JMF), such as Bulk Specific Gravity (Gmb), Maximum Theoretical Specific Gravity (Gmm), and aggregate loss on ignition.

Procedure: A new Asphalt Mix design shall be subject to the following procedure prior to being approved for use in TDOT work:

The contractor/designer shall submit materials to the regional TDOT laboratory according to Table 1*, along with a completed copy of the latest available electronic TDOT JMF software:

Table 1

MIX TYPE	HMA SAMPLE REQUIREMENTS
307 BM 307 BM-2 307 C 307 CS 307 CW 411 D 411 E Roadway 411 E Shoulder 411TL 411TLD	3 Pills compacted at design air voids 6 Pills compacted at 7±1% Air Voids 2 Samples for Rice Gravity** LOI (411 D Only) 2 Samples for NCAT Furnace Calibration***
411 OGFC	9 Pills at optimum AC (50-blow Marshall or 50-yratation gyratory) 2 Samples for Rice Gravity** 2 Samples for NCAT Furnace Calibration*** 5000-g aggregate batch for dry- rodded unit weight LOI

Table 1 (Continued)

307 A 307 AS 307 ACRL 313 TPB	None
Same As w/: No changes AC Supplier Change Binder Upgrade	None
Same As w/: Binder Downgrade	6 Pills compacted at $7\pm 1\%$ Air Voids 2 Samples for Rice Gravity**

* Unless directed otherwise by the Regional Materials Supervisor

** Samples should be sized according to Section 7 of AASHTO T 209

*** Samples should be sized according to Table 1 of AASHTO T 308

Designs must be submitted no less than 14 working days prior to mix production.

Pending test results and JMF review; the regional laboratory will either reject the design, or submit it to the Regional Materials supervisor for approval. If a design is rejected, the design technician or contractor will be notified via email or by phone by Regional Materials and Tests.

Split samples should be submitted to the regional laboratory according to Part 2 of SOP 1-1.

Once approved, mix designs will be valid for TDOT work until December 31st.